

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-7 are pending in this application. Claims 1 and 5 are independent. The remaining claims depend, directly or indirectly, from claims 1 and 5.

Objection(s)

The drawings are objected to because Figure 1 lacks the designation "PRIOR ART." Additionally, in Figure 1, the reference character "26" has been used to designate both a window and encapsulating material. The drawings have been amended in this reply in view of this objection. Accordingly, withdrawal of this objection is respectfully requested. No new matter has been added.

Rejection(s) under 35 U.S.C § 102

Claim 1 stands rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,155,068 ("Tada"). This rejection is respectfully traversed.

Claim 1 of the present invention recites an integrated circuit (IC) device, which includes an active chip and a complementary chip attached to the active chip. The active chip has an active face with a plurality of electrical connection terminals and a specified thickness (*i.e.*, 100 micrometers). Additionally, the complementary chip is attached to

the active face of the active chip and has a larger thickness than the active chip. Further, the complementary chip includes a plurality of recesses, where each recess extends through the entire thickness of the complementary chip, from above a contact terminal to a side surface of the complementary chip. With the present invention, it is possible to provide an IC device permitting the manufacturing of an electronic unit for smart cards having a reduced thickness, while the strength of the electronic unit within the smart card is not reduced. The plurality of recesses in the complementary chip, and the location of these recesses, provide the active chip with electrical connection as well as maintain the electronic unit of reduced thickness and sufficient mechanical strength.

In contrast, Tada discloses a method for manufacturing an IC module for an IC card, where the IC module includes a large scale integration (LSI) chip that is thinned by a material removal technique. Further, Tada discloses an active device (*i.e.*, that may correspond to the active chip of the present invention) and a substrate (*i.e.*, that may correspond to the complementary chip of the present invention), where the substrate is removed almost completely to become a thin film when the LSI chip is abraded to become thin (col. 3 ll. 12-15). Therefore, as a consequence of the thinning process, the active device has a larger thickness than the substrate, whereas in the present invention, the complementary chip has a larger thickness than the active chip.

Additionally, Tada discloses a manufacturing technology using bump electrodes, as admitted by the Examiner. In this technique, these bump electrodes are formed on a metallic wire layer directly on the upper surface of the active device. The present invention also discloses such a technique (page 3, ll. 28-36); however, that is not the method used in the present invention. Moreover, because the substrate in Tada is under

the active device and the connecting terminal is over the bump electrodes, it is not possible for the substrate disclosed in Tada to include recesses, as recited in claim 1 of the present invention.

In view of the above, Tada fails to show or suggest each and every element of the present invention as recited in independent claim 1. Thus, claim 1 is patentable over Tada. Dependent claims 2-4 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection(s) under 35 U.S.C § 103

Claims 2-7 stand rejected under 35 U.S.C. § 103(a) as obvious over Tada. This rejection is respectfully traversed.

As noted above, Tada does not disclose or suggest each and every element of independent claim 1. Further, the method disclosed in Tada cannot be used to achieve an active and complementary chip, where the complementary chip has a greater thickness than the active chip and the complementary chip includes recesses as described above. Therefore, one of ordinary skill in the art would not use the method of Tada to achieve the claimed invention. Thus, the present invention cannot be considered obvious in view of Tada.

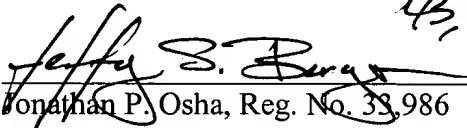
In view of the above, Tada fails to show or suggest the present invention as recited in the claim 1. Claim 5 contains similar patentable subject matter as recited in independent claim 1. Thus, the claims are patentable over Tada. Dependent claims 6 and 7 are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 09669/005001).

Respectfully submitted,

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